

Appl. No. 10/735,105
Response to Office Action mailed January 19, 2006

Atty Dkt. No. 112780-039

REMARKS

The non-final Office Action was issued on pending claims 1-3. Claims 1-3 stand rejected. In this Response, no claims have been amended, added or cancelled. Thus, claims 1-3 are pending in the application.

Applicant invites the Examiner to call Applicant's Representative to discuss any issues with this application.

Claim Rejections – 35 USC §102

At page 2 of the Office Action, claims 1-3 were rejected under 35 U.S.C. §102(b) as being anticipated by Yamazaki et al. (US 6,302,910). Applicant respectfully disagrees.

Yamazaki et al. pertains to an auxiliary artificial heart of an embedded type. The Office Action asserts Yamazaki et al. has a shaft member having a sliding contact surface that comes into contact with a seal member (41) formed from urethane or fluoro-resin or PTFE or polyurethane or like materials. The Office Action further asserts the sliding contact surface is defined to have a surface energy of 50 dyne/cm or less for contact with the seal member. However, Yamazaki et al. does not even mention surface energy or more specifically, that the surface energy of the sliding contact surface of the shaft member is 50 dyne/cm or less.

Figs. 2 and 3 of Yamazaki et al. show that the shaft member (driving shaft 26) having a sliding contact surface comes into contact with a seal member (sealing mechanism 31). Nickel is flush-plated on the surface of the stainless steel shaft member 26. Thereafter, a nickel plated film is formed in a nickel-phosphorus plating solution in which there are distributed tetrafluorethylene fine particles which have been made hydrophilic by a surface active agent. Although Yamazaki et al. describes a Vickers hardness of the surface of the shaft member as 500-600 after heat treatment, Yamazaki et al. does not describe or suggest that the surface energy of the shaft member 26 has any particular value based on the processing conditions of the shaft member 26. See Yamazaki et al. column 7, line 58-column 8, line 37. Accordingly, Yamazaki et al. is not even concerned with and does not focus any attention on the surface energy of the shaft member at all. Merely because the shaft member 26 has a surface treatment does not mean that the surface energy is 50 dyne/cm or less.

Appl. No. 10/735,105
Response to Office Action mailed January 19, 2006

Atty Dkt. No. 112780-039

The Yamazaki et al. sealing mechanism 31 has an oil seal 41 having a lip portion 42 which seals against the driving shaft 26. See column 6, lines 51-55 and column 7, lines 10-41. The lip portion 42 of the oil seal 41 of the sealing mechanism 31 is designed to provide a lubricating film of sealing liquid between the oil seal 41 itself and the driving shaft 26. The lubricating film ensures sealing and prevents direct contact of the oil seal 41 with the outer peripheral surface of the driving shaft 26 such that the oil seal 41 is free from wear for a long time. See column 7, lines 15-20 and 29-34. Because Yamazaki et al. specifically describes that the oil seal 41 does not have direct contact with the driving shaft 26 and the lubricating film is used to ensure sealing and to prevent wear of the oil seal 41, Yamazaki et al. does not describe that the driving shaft 26 have a surface energy of 50 dyne/cm or less. Also, it would not be obvious to modify the Yamazaki et al. driving shaft 26 to have such a surface energy.

Conversely, claim 1 calls for the sliding contact surface is defined to have a surface energy of 50 dyne/cm or less for contact with the seal member. Applicant's invention can provide advantages. Applicant's invention can provide a sliding contact structure which is excellent in sealing performance and durability and in which a shaft member and a seal member are neither worn nor damaged for a long period of time without sticking to the surface hardness of the shaft member. In addition, Applicant's invention as claimed in claim 1 which defines the range of the value of surface energy of the shaft member having the sliding contact surface that comes into contact with the seal member as 50 dyne/cm or less can achieve those advantages.

Therefore, Yamazaki et al. does not disclose or suggest all of the features of Applicant's claim 1. Furthermore, there is no motivation or suggestion in Yamazaki et al. for modifying Yamazaki et al. to achieve Applicant's claimed invention. One having ordinary skill in the art would not find it obvious to define the surface energy of the sliding contact surface of the shaft member that comes into contact with a seal member as claimed in claim 1 of Applicant's invention. Additionally, Yamazaki et al. does not provide the working effects or advantages that can be provided by Applicant's invention of claim 1 such as the shaft member having excellent durability without sticking to the surface hardness of the shaft member and excellent sealing performance because the object and feature of Yamazaki et al. are totally different from those of the present invention.

Appl. No. 10/735,105
Response to Office Action mailed January 19, 2006

Atty Dkt. No. 112780-039

Applicant respectfully submits claim 1 is allowable. Dependent claims 2 and 3 are allowable at least for the reasons that claim 1 is allowable.

Thus, Applicant submits that the §102 rejections should be withdrawn.

Comments in Office Action Paragraph 3

The Office Action at paragraph 3 includes comments on JP 56016698A and Shrontz (US 5,165,699). Applicant notes the claims were not rejected in view of those references. Applicant disagrees with any assertion that the claims are not patentable in view of those references. Applicant has not substantively addressed those references in this Response because the references were not relied on to reject the claims.

CONCLUSION


For the foregoing reasons, Applicant submits that the patent application is in condition for allowance and requests a Notice of Allowance be issued.

Respectfully submitted,

EVEREST INTELLECTUAL PROPERTY LAW GROUP

Date: April 19, 2006

BY



Michael S. Leonard, Reg. No. 37,557
P.O. Box 708
Northbrook, IL 60065
Phone: (847) 272-3400